

positions of which were required for the reduction of the observations made by the late Mr. James Ferguson during the years that he was so industriously and effectively observing with the equatorial. As a whole, therefore, the catalogue is a very miscellaneous one. The first edition contained 10,658 stars, with a number of cases, however, where the star had been observed only in one element, and included objects observed during the years 1845 to 1871. The new edition contains the results of observations to 1877, and includes 11,103 stars; the mean places are for the beginning of the year 1860, but it is to be borne in mind that they do not include any effect of proper motion from the mean date of observation, which is always given, to that general epoch. The annual precessions are annexed, without secular variation.

Like other publications of the U.S. National Observatory, the new Washington catalogue appears to have been most liberally circulated amongst astronomers.

**NEW COMETS.**—On August 21 a telescopic comet was discovered at Pola by Herr Palisa; its position at roh. 26m. M.T. was in right ascension  $150^{\circ} 35'$  and declination  $+49^{\circ} 6'$ ; daily motion in right ascension  $1^{\circ} 34'$  increasing, and in declination 3 minutes diminishing; it was small but bright.

A second comet was discovered on August 24 at the Imperial Observatory, Strassburg, by Dr. Ernst Hartwig; it was then very faint and about  $1\frac{1}{2}$  minutes in diameter. The following elements and ephemeris have been calculated by Dr. Hartwig, from the Strassburg observations on August 24 and 28, and one at Leipzig on August 26 :—

Perihelion passage August 26<sup>h</sup> 46<sup>m</sup> 1 M.T. at Berlin.

Longitude of perihelion ... ..	309 56.3	} M.Eq. 1879.0.
ascending node ... ..	28 12.7	
Inclination ... ..	71 55.0	
Logarithm of perihelion distance	9.99056	

Motion—retrograde.

It will be found that these elements have no resemblance to those of any comet at present in our catalogues.

The following positions are for Berlin midnight :—

	Right Ascension. h. m. s.	Declination North. ° ' "	Log. distance from Earth. ...	Log. distance from Sun. ...
Sept. 5 ...	13 34 9	42 50.3	0.1055	9.9973
9 ...	13 46 19	37 37.8	0.1314	0.0036
13 ...	13 55 44	32 57.2	0.1577	0.0116
17 ...	14 3 20	28 46.5	0.1834	0.0212
21 ...	14 9 38	25 2.6	0.2081	0.0320
25 ...	14 15 3	21 42.2	0.2315	0.0439
29 ...	14 19 47	18 41.8	0.2535	0.0567

#### TO ASTRONOMERS

THE United States Naval Observatory will gratefully receive for its Library *separate copies or reprints* of memoirs published in the Transactions of learned societies or in journals. The volumes of Transactions are regularly received, but often many months after the reprints of particular papers, which are, therefore, especially valued.

It is also requested that all communications of this nature, and all correspondence relating to them, may be addressed to The Library, U.S. Naval Observatory, Washington, U.S.A.

Agents of the Smithsonian Institution abroad will receive large parcels for transmission. Smaller ones will be received more quickly if they are sent by post.

As far as possible the publications of the Observatory will be distributed to all working astronomers.

JOHN RODGERS,

Rear Admiral, U.S.N., Superintendent  
Naval Observatory, Washington, D.C., August 18

#### GEOGRAPHICAL NOTES

THE Permanent Commission of the International Geodetic Association, presided over by General Ibañez, has

decided to meet on the 16th inst. at Geneva, on the invitation which has been addressed to it by the Government of the little republic. The first official sitting is to be at 2 o'clock, on the 16th, at the Hotel de Ville of Geneva, in the room known as "the Alabama." In the evening Prof. E. Plantamour will hold a reception. The official sittings will continue daily at 10 A.M., in the same room, to the end of the week, interrupted on the 18th by a procession of steamers on the lake, which will occupy the whole of the day. On the evening of the 17th the Commissioners are invited to dine by the Council of the State of Geneva, and on the afternoon of the 19th there will be a reception at Sécheron by Prof. Plantamour. The programme of the session comprises: The reports of the Permanent Commission and the Central Bureau, the report of the Commission appointed at Hamburg in 1877 to consider the proposals of Lieut.-Col. Adan; the choice of the place of meeting of the sixth conference, and the appointment of special reporters to record the proceedings (1) As to determinations of latitude, longitude, and azimuth; (2) Triangulations and calculations of compensation of the networks; (3) Levelling operations and result of mareographic operations; (4) Measurements of the intensity of gravitation; (5) Publications relating to the measurement of degrees in Europe.

THE eminent African traveller, Dr. Junker, intends to start for Africa during this month. His first object is to reach Monbutta, which is to form the basis for his further investigations.

THE *Daily News* Lisbon correspondent telegraphs on September 2, that official news has arrived which states that on July 24 the explorers Ivens and Capello were in the district called Duque de Braganza. At the last session of the Geographical Society it was stated that the explorers were unable to continue their journey through want of means. The president promised to ask the Government to send them assistance. It will be remembered that Ivens and Capello started with Major Pinto.

WE find in the *Isvestia* of the Russian Geographical Society an interesting note by M. Potanin on the eastern Altai Mountains. Until 1869 these highlands were quite unknown, and even after the recent explorations of MM. Matusovsky and Sosnovsky it was considered that the Altai range did not go east of the meridian of Kobdo, where geographers, according to the map of Klapproth, supposed the existence of low hills which connected the Altai with the Tian Shan. Now M. Potanin proves that the Altai range goes further east, at least to the meridian of Lake Orok-nor, and that it is separated on its whole length by the Gobi steppe from the Tian Shan mountains. The altitude of the mountain passes in the parts visited by M. Potanin reaches as much as 8,000 feet. The eastern parts of the Altai mountains are rather dry, and forests in this part of the range are rather scarce.

THE same number of the *Isvestia* of the Russian Geographical Society contains an interesting note on the levelling accomplished during the last three years by the Russian General Staff on several lines of railways in Western Russia. The results are very satisfactory, as the probable error of this topographical levelling (with level and rule) does not exceed  $\pm 2$  inches on a distance of 100 versts (67 miles), *i.e.*, less than half the probable error of the best geodetical levellings. These levellings have brought to light a very interesting circumstance, namely, that the average level of the sea at Cronstadt is  $13.2 \pm 3.3$  inches higher than at Dünamünde; the distance between the two towns being 240 miles. The Prussian levellings prove that the level of the Baltic is 20 inches higher at Kiel than at Memel.

CAPT. HOWGATE writes to us that he is preparing to send an expedition to the North Pole next year, independently of

the course to be taken by Congress next session. A ship fitted by him will start for Lady Franklin Bay, even if Congress leaves him unassisted.

### NOTES

THE Central Meteorological Office of Italy (the Collegio Romano) has just issued the third part of a most useful series, forming one volume of 282 pp., imperial 8vo. (Imprimerie Héritiers Botta, Rome, 1879), which will be of great service to meteorologists generally. They contain a translation, in French, of all the Reports (*in extenso* or abridged) prepared upon the different questions comprised in the Programme of the Second International Meteorological Congress held at Rome in April of this year, together with many other papers communicated to the Congress. The work has been undertaken with the view of presenting to meteorologists, not only the whole of the questions which have been discussed by the Congress, but also the *ensemble* of the experiments and documents which have formed, so to speak, the basis of each discussion, and which represent, at the same time, the opinion of the distinguished men from the whole of Europe upon the most important points of international meteorology. The translation has been carried out under the able superintendence of Prof. Guido Gras i, director of the Roman Central Office, and we congratulate that office upon the careful translation of the reports from the various languages and upon their speedy issue in one convenient volume.

OUR readers will be pleased to learn that Prof. Huxley's Introductory Primer to Macmillan's series of Science Primers will probably be published during the autumn; a considerable portion of it is already in type.

THE inauguration of Arago's statue will have the *déclat* of a national *fête*. The Municipal Council of Paris, of which Arago was an active member during Louis Philippe's reign, will send a deputation. The Bureau des Longitudes, the Observatory of Paris, and the Academy of Sciences, institutions which for years owed their lustre to the great Arago, are sending special representatives delegated for the purpose. M. Etienne Arago, the younger brother of the departed astronomer, a dramatic author, and M. Emmanuel Arago, his son, an influential member of the Senate, will be present at the ceremony, and will deliver addresses.

As will be seen from our British Association Reports, the Zoological Station at Naples has undertaken the publication of a new Zoological Record, in which equal attention will be paid to all departments of zoology. A large staff of zoologists of various nationalities will act as recorders, under the editorship of Prof. J. V. Carus, of Leipzig; and the first volume, dealing with the literature of the current year will appear in 1880. All those engaged in zoological work on any group of the animal kingdom are invited to send a copy of their papers to Prof. J. V. Carus, Leipzig, Querstrasse, 30; and to write on the address "for the Jahresbericht." Papers so sent will be distributed by Prof. Carus amongst the recorders, and after being abstracted for the Record, will be deposited in the library of the Zoological Station at Naples.

THE St. Petersburg Society of Naturalists has undertaken the publication of a complete Ornithology of Northern Russia. All who possess any data on that subject, or collections of birds, are requested to communicate them to "the St. Petersburg Society of Naturalists, at the University of St. Petersburg."

M. DOKUCHAIEFF, who was sent by the St. Petersburg Society of Naturalists for the exploration of the river and lacustrine quaternary deposits on the banks of the Oka, has discovered at the confluence of this river with the Frubesh, an immense quantity of stone implements. The dunes on the banks of the Oka in the neighbourhood of Kasimov town have also

yielded a good many remains of prehistoric man. But the spot richest in remains is undoubtedly that five miles distant from Moorom town, where M. Dokuchaieff has found a remarkable variety of stone arrows, knives, and needles. As to the pieces, of wood which are very common in the blue clays of fluviolacustrine origin, and which were considered as remains of lacustrine dwellings, these are simply remains of forests which formerly covered all these deposits.

MR. CROOKES' admirable set of instruments for exhibiting the properties of radiant matter will be lectured upon at the Sorbonne at the beginning of next October, at the inauguration of the Autumn term of the Academy of Sciences.

ON October 6 next, a new Polytechnic Institution will be inaugurated at Hanover. The new building has recently been completed, and no cost has been spared to render it worthy to rank amongst the most complete and extensive buildings of the kind. Deputations from all the other polytechnic high school of Germany will participate in the inauguration-festivities.

THE death is announced of Dr. Otto Funke, Professor of Physiology at the University of Freiburg im Breisgau (Baden). Dr. Funke was an eminent physiologist, and lived at Leipzig for many years previous to his call to Freiburg. He died on August 16, at the age of fifty-one years.

THE Congress of German Viticulturists is now meeting at Coblenz, and is discussing a number of viticultural questions of importance, including, of course, the much-ventilated phylloxera question. At the same place a meeting of Rhenish agriculturists will take place between September 7 and 10, accompanied by an agricultural exhibition.

THE Zoological Section of the Westphalian Provincial Society for Arts and Sciences had an interesting exhibition at the Zoological Gardens of Münster from August 17 to August 24 last. It consisted exclusively of invertebrate animals, illustrations of their habits and specimens of their products. The exhibition comprised insects (bees, beetles, butterflies, flies, grasshoppers, &c.), centipedes, spiders, crustaceans, annelids, molluscs (cephalopoda, gasteropoda, conchifera), echinoderms (holothuræ, echinoidea, asteroidea), coelenterata (medusæ), polyps, sponges, and infusoria. Most of the animals were represented in living as well as preserved specimens.

DURING the second week in August the German Anthropological Society met at Strasburg, under the presidency of Prof. Fraas. 164 members were present. Amongst the numerous interesting papers read we notice the following:—On the prehistoric map of Southern Germany and Eastern France, by Herr von Troeltsch; Professors Oehlenschlaeger (Munich) and Wagner (Karlsruhe) spoke on the same subject; Prof. Schaaffhausen (Bonn) lectured on skull measurements; Dr. Much (Vienna), on prehistoric traces of copper-mining; Prof. Klopffleisch (Jena), on his own excavations in Thuringia; a specially interesting paper was that by Herr Fischer (Freiburg), on the method of determining the age of stone weapons and utensils. Other papers were read by Dr. Gross (Naefels), on the pile-dwellings in the Biel Lake; Dr. Krause (Hamburg), on artificial alterations of the skulls of the natives of the New Hebrides; Dr. Mehli (Tückheim), on the excavations at Limburg; Dr. Hook, on the stone age in Egypt. The next meeting of the Society will take place at Berlin, under the presidency of Prof. Virchow.

THE International Society for the prevention of the pollution of rivers, the soil, and the atmosphere, will hold its third meeting at Baden-Baden on the 16th and 17th inst.

AT Rome a new Society for furthering the introduction of cremation was formed on August 12 last. Many eminent medical men are members.